ANNEX C TO SMALLPOX RESPONSE PLAN 29 September 2002
ISOLATION AND QUARANTINE GUIDELINES.

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1. General. DoD will augment CDC Guide C with current science-based data published by USAMRIID, the Association for Professionals in Infection Control and Epidemiology (APIC), Society of Healthcare Epidemiologists of America (SHEA), Infectious Diseases Society of America (IDSA), American Hospital Association (AHA), American Institute of Architects (AIA), and American Society for Healthcare Engineering (ASHE), in responding to a smallpox outbreak. Appendix C-1 summarizes CDC Guide C and this DoD Annex on one page. Appendix C-2 and Appendix C-3 summarize infection-control principles for acute-care and home-care settings, respectively.

2. Mission. Health-care workers and the public will isolate suspected and confirmed cases of smallpox. Infection-control officers in each military treatment facility (MTF) will provide subject-matter expertise on specific procedures. Infectious-disease physicians, preventive-medicine personnel, and public-health personnel will provide additional support and guidance as indicated.

3. Plan.

a. Definitions.

(1) Isolation. Isolation is defined as the separation of a person or group of persons from other people to prevent the spread of infection.

(2) Quarantine. Quarantine is defined as the restriction of activities or limitation of freedom of movement of those presumed exposed to a communicable disease, to prevent contact with people not exposed. Although quarantine measures may be instituted and enforced for either individuals or populations, the term is used more frequently to discuss measures taken at a population level.

b. Assumptions.

(1) Infection-Control Risk Assessment. Infection-control professionals (ICPs) include facility-specific assessment of bioterrorism response, readiness, and containment in Infection Control Risk Assessments (ICRAs). Each ICRA addresses ventilation-system design to accommodate several patients requiring airborne precautions (Appendix C-8), as in smallpox. The ICRA is integrated into each facility's assessment.

(2) Facility Design and Renovation. The first person to recognize a case of smallpox is likely to be a healthcare provider in a triage setting. This creates the need for new construction to have negative-airflow triage and emergency room waiting areas. These areas should be under negative pressure and have direct exhaust ventilation to the outside. If air cannot be exhausted outside, it may be recirculated to other areas of the facility, provided that the air is first passed through a HEPA filtration system. The American Institute of Architects (AIA) guidelines require that new emergency room suites include an Airborne Infectious Isolation Room (AIIR). The AIA also requires the use of ICRAs for long-term design planning, including replacement ventilation systems or hospital renovation or design.

(3) Alternate Facilities. MTFs possess only a limited number of operational negative airflow rooms. Each isolation room may only hold one to four people. Therefore, MTFs will examine existing large spaces adaptable for use as triage and treatment areas, remote from other patient care areas to permit ventilation disruption and use of portable HEPA filter units. This document will detail and supplement each facility's existing individual and regional Emergency Preparedness Plans, including hospitals, medical clinics, hospital ships, and other ships.

(4) Dedication of Resources. In an outbreak scenario, patient care areas (e.g., wards, units, barracks) may be dedicated for smallpox patients.

c. Planning Factors.

(1) Immediate recognition of a case of smallpox is integral to timely response. Smallpox education and training must take place before any outbreak occurs.

(2) Effective response includes appropriate transmission-based isolation measures. MTF leaders will keep track of the number of functional negative airflow rooms available in their facility, as well as in the surrounding region.

(3) Installation and MTF commanders will identify Airborne Infectious Isolation Rooms (AIIRs) and areas in their local plans. Airborne-isolation contingency plans must be developed. Plans must be sufficient to deal with caseloads ranging from one index case to multiple index and secondary cases. If the size of a smallpox outbreak exceeds available areas for triage, treatment and care of smallpox patients in appropriate AIIRS,

then housing in cohorts known as Type C, X, and R facilities is an acceptable means of infection prevention and control (Appendix C-4).

(4) MTF commanders should consult with industrial hygiene and facilities management personnel regarding the specific heat-ventilation-air-conditioning (HVAC) characteristics of each hospital, clinic, and other building to be used in the execution of this document. HVAC systems should not be turned off without understanding the effects of such a change on airflow within a building. For example, turning off an HVAC system could compromise airflow in sensitive areas (e.g., operating rooms, negative airflow rooms).

(5) Routine resources may be quickly overwhelmed in a large outbreak, so local plans will identify courses of action to access alternate sources of supply.

d. Coordinating Instructions. The first section within an MTF to recognize the admission or arrival of a potential smallpox case will notify the following individuals immediately. Then the MTF activates its disaster plan, contacting the following internal experts:

(1) Preventive-medicine / public-health officer.

(2) Infection-control service and epidemiology staff.

(3) Community health nurses.

Specific policies for reporting smallpox cases outside the MTF are described in Annex A. In brief, (a) submit a report immediately through established Service disease-reporting systems, beginning with the local preventive-medicine/public-health service, (b) submit a Serious Incident Report (SIR) to higher military headquarters, (c) notify CDC Emergency Preparedness & Response Branch (770-488-7100), (d) notify state health department, then (e) notify other appropriate authorities (e.g., local health department).

e. Providing Care.

(1) Several state and federal laws and healthcare certification standards address issues of access to emergency care services. Although these laws and standards are not necessarily applicable to MTFs, they represent important policy objectives for the healthcare system and public-health community.

(2) Therefore, consistent with mission requirements and other applicable rules and procedures, MTF planning will be based on a premise of providing care to patients with infectious diseases.

(3) Once the MTF admits a smallpox patient, the MTF is obligated to provide appropriate care or risk potential liability for abandonment. If an MTF staff member

refuses to care for a patient with a contagious disease, the MTF has a responsibility to see that care is rendered, even if this means transferring the patient to another facility where appropriate care will be provided.

(4) Healthcare personnel will not be excused from providing care to patients with infectious diseases. MTF personnel policies should specifically address employee insubordination or unreasonable refusals to treat patients.

(a) MTFs will provide their staff specific information to assuage fears of occupational exposure. Content will include the provision of smallpox vaccine as well as appropriate personal protective equipment (PPE, e.g., gowns, gloves, respirators, goggles) to protect against the transmission of infectious diseases.

(b) If an employee, after individual education and counseling, refuses to perform his or her duties in caring for infected patients, the MTF may either attempt to accommodate the employee by job reassignment or institute disciplinary action for insubordination. In doing this, the hospital will have to act within any relevant limitations imposed by the National Labor Relations Act or collective bargaining agreement.

f. Quarantine. Appendix C-9, Appendix C-11, and Appendix C-12 discuss various laws, regulations, and factors affecting quarantine.

4. Execution.

a. Concept of Operations.

(1) Recognition of a single patient with smallpox will constitute an international public-health emergency. The control of disease is primarily a public-health strategy, with rapid identification of cases and immediate isolation of cases. Patients should be hospitalized if adequate facilities permit. Appropriate infection-control procedures will be paramount and must include contact and airborne isolation. Cohorting is recommended. In other words, place patients with the same illness but no other transmission-based infections in rooms together, considering other relevant factors (e.g., age, sex, room size, staffing patterns) (Appendix C-7). Render medical care appropriate for the acuity of illness. Minimal-care or out-of hospital care of smallpox cases is possible and may be desirable.

(2) If a smallpox case is recognized within an MTF, secure the entrances and exits of the affected unit, until a roster of names, addresses, and telephone numbers can be created of people who had face-to-face contact ($\leq$ 6 feet) with the suspected smallpox case. After this roster is completed, these people may be released, with instructions that they will be contacted by preventive-medicine/public-health personnel about the possible need for smallpox vaccination within the next few days. Advise these people not to travel more than 20 miles from their city of residence. There is no need to close installation gates, unless this effort would be useful to find named face-to-face

contact(s) (≤ 6 feet) of a suspected smallpox case. The MTF should then prepare to isolate the case (Appendix C-4) and initiate contact tracing (Appendix A-3).

b. Tasks and Responsibilities. These tasks/issues will need to be coordinated:

(1) Respiratory Protection Program. Each MTF will develop or enhance a Respiratory Protection Program that includes medical clearance of personnel likely to called on to wear a NIOSH-approved N95 particulate respirator, fit testing of that respirator, and appropriate occupational record-keeping. These programs will comply with Occupational Safety & Health Administration standard 1910.134.

(2) Vaccination. Smallpox vaccination is indicated for all care providers and exposed patients. Decisions regarding pre- versus post-outbreak vaccination will reflect current DoD policy. MTFs will develop procedures for identifying healthcare workers who cannot be immunized due to medical contraindications (e.g., pregnancy, immune compromise, eczema, history of eczema) or who decline vaccination. People declining vaccination should sign a statement acknowledging that they have been advised of the risks of disease and the benefits and risks of vaccination. Vaccination programs will include appropriate follow-up services (e.g., adverse event surveillance and management, documentation). See Annex B for details.

(3) Personal Protective Equipment (PPE). MTFs will develop plans for providing PPE to their staff, in various sizes and at no cost to the workers.

(4) Safety and Security. MTFs will coordinate with installation provost marshals or other military police units for the physical security of MTF property and personnel.

(5) Air-Handling Issues. MTFs will develop plans for appropriate emergency changes in air-handling within the facility. MTFs will post appropriate air-handling procedures in emergency department offices and other appropriate locations (e.g., which controls to turn to which position, before or after seeking engineering advice).

(6) Patient Placement. Do not admit smallpox patients once hospitals reach maximum capacity. Preferably, hospitals will divert smallpox patients to Type C facilities before this stage is reached. Implement hospital disaster plan before maximum capacity is reached. Close hospital to non-critical admissions. Provide notification of significant incoming casualties to affected personnel and facilities. Establish and operate a Medical Command Center within the facility. Relocate non-infected patients to another facility. Establish and operate Acute Care Centers (ACCs), to provide definitive and supportive care to acute patients. Establish methods for tracking patient movements in the system. See also Appendix C-6 and Appendix C-7.

(7) Disaster Medical Assistance Teams (DMATs). Provide DMATs and individual public-health and medical personnel to assist in providing care. DMATs can provide triage, medical or surgical stabilization, and continued monitoring until patients can be evacuated to other locations for definitive care. In addition to DMATs, active-duty and

reserve component units can be deployed for casualty clearing or staging, and also for other missions.

5. Operational Constraints.

a. Training and Education.

(1) MTFs will know how to readily access educational materials (e.g., CDC and DoD websites), including fact sheets specific for healthcare workers (HCW), ancillary staff, families, worried well, and patients. Have paper or CD-ROM versions of fact sheets available, in case access to the Internet is lost.

(2) MTFs will provide education for people with special needs (e.g., those with low English literacy), using culturally appropriate and culturally competent providers.

(3) MTF policies and procedures will be readily available to staff using appropriate technology (e.g., intranet, CD-ROM, paper).

b. Signage. MTFs will prepare a supply of standard precaution and transmission-based precaution instructional signs (e.g., airborne-isolation signs, contact-isolation signs).

c. Staff Safety. MTFs are responsible for vaccination of healthcare providers, as well as fit-testing of NIOSH-approved N-95 particulate respirators.

6. Administration and Logistics.

a. Supplies and Equipment.

(1) Linen. Transmission of smallpox virus via contaminated bedding occurred only rarely in the past. Nonetheless, due attention to infection prevention is appropriate for occupational safety. MTFs will develop plans for handling linens in a smallpox outbreak. Linen will be handled with care to avoid contamination of the environment. MTFs will provide laundry workers with appropriate PPE, including a fit-tested NIOSH-approved N95 particulate respirator, gown, and disposable gloves. Workers will receive vaccination and wear PPE appropriately when in contact with soiled linen. Linen will be sanitized using appropriate hot wash temperatures, detergent according to manufacturers' recommendations, and adequate amounts of bleach (reference g).

(2) Regulated Medical Waste (RMW). MTFs will develop plans for handling regulated medical waste (RMW) in a smallpox outbreak. Abide by whichever regulations are most stringent in your area: federal, state, or local. All bodily fluids are safely disposed of via the sanitary sewer. All waste generated by smallpox cases will be treated as RMW.

(3) Ordering and Storage. MTFs will identify Prime Vendor (PV) capabilities for increased deliveries of all medical supplies and equipment. MTFs will develop contingency plans for requisitioning medical supplies, in case standard channels are inadequate. Just-in-time delivery by prime vendors may not be sufficient to meet needs during outbreaks, based on the large volume of supplies that may be needed throughout a region. MTFs will monitor Inventory levels closely for the following key supplies:

(a) PPE supplies: NIOSH-approved N-95 particulate respirators, gloves, fluid-resistant gowns (e.g., cloth, paper-disposable), face shields/goggles (if splashing or splattering of body fluids is anticipated).

(b) Medical supplies: Alcohol-based hand-hygiene agents, antimicrobial soap, RMW bags, EPA-approved hospital-grade disinfectants, and household bleach.

(4) Cleaning, Disinfection, and Sterilization of Equipment and Environment. A component of contact precautions (Appendix C-8) is careful management of potentially contaminated equipment and environmental surfaces.

(a) When possible, noncritical patient-care equipment should be dedicated to a single patient (or cohort of patients with the same illness).

(b) If use of common items is unavoidable, do not use potentially contaminated, reusable equipment for the care of another patient until it has been appropriately cleaned and reprocessed. MTFs will establish policies and monitor for compliance.

(c) EPA-approved hospital-grade germicides (“hospital-approved disinfectants,” HAD) easily kill both smallpox (variola) virus and vaccinia virus (the active ingredient in smallpox vaccine).

b. Major Equipment.

(1) Negative airflow rooms. MTF leaders will keep track of the number of functional negative airflow rooms available in their facility, as well as in the surrounding region. Hospitalized smallpox patients require placement in rooms that meet ventilation and engineering requirements for airborne precautions (Appendix C-7 and Appendix C-8). These requirements include:

(a) Monitored negative air pressure relative to the corridor and surrounding areas.

(b) 6 to 12 air exchanges per hour.

(c) Appropriate discharge of air to the outdoors, or use of monitored high-efficiency particulate air (HEPA) filtration before circulation to other areas in the facility.

(d) A door that is kept closed.

Knowledge of facility heat, ventilation and air conditioning (HVAC) system is critical to determining airflow within a facility. Therefore, proper functioning and maintenance of HVAC systems and HEPA filters is essential to prevent disease transmission. Circumstances that alter the balance of supply and exhausted air will disrupt continuous negative airflow. Examples of altered airflow and balance include activation of fire-alarm systems, elevator shaft work, changes in ventilation dampers, changing of large bag filters and shutting down portions of a ventilation system. These factors must be integral to local facility plans. Other discussion of facility specifications appears in CDC Annex C.

(2) Ventilators and related respiratory support.

c. Transportation. Personnel in transport vehicles (e.g., ground and air ambulances, ships and smaller vessels) carrying patients with smallpox will follow airborne and contact precautions, by placing all crew members in a fit-tested NIOSH-approved N95 particulate respirator, gown, and gloves, by placing a surgical mask on the patient (if feasible), and disinfecting the transport vehicle according to Annex F before transport of patients without smallpox.

7. Special Situations.

a. Recall of troops from community onto a military installation after outbreak detected.

(1) If smallpox cases have been detected in a community with no apparent connection to the military installation, troops returning to that installation will be vaccinated against smallpox (except as provided in Annex B). The installation will start active surveillance for generalized vesicular or pustular rash illness with or without fever (GVPRI, GFVPRI). See Annex A.

(2) If smallpox cases have been detected in a community near or with apparent connections to the military installation, troops returning to that installation will be isolated on the installation, vaccinated against smallpox (except as provided in Annex B), observed for an appropriate interval of time (i.e., 18 days from last contact with a possible smallpox patient or 14 days after verification of vaccine take, to rule out the possibility of disease despite vaccination), and then returned to their normal military routine. The troops do not need to be quarantined away from other base occupants (except for contacts of smallpox cases or contacts of contacts during periods of possible contagiousness). Observation may take the form of twice-a-day verbal questions about fever ≥ 101º F (38ºC) and appearance of rash. This observation could occur at unit formations or assemblies. If urgent military contingencies disperse the personnel, inform them to report fever at sick call and maintain surveillance for generalized febrile Vesicular or Pustular Rash Illness (see Annex A).

(3) For family members and government civilians seeking entry onto a military installation, the provisions of subparagraph (1) above will also apply.

(4) Family members and government civilians leaving a military installation may be advised, if applicable, that they may be going into an area of possible smallpox exposure. These individuals may be advised, if applicable, that they may be subject to isolation or public-health surveillance upon return to the military installation.

b. Ships underway. Depending on specific shipboard airflow patterns, the crew will isolate potential cases of smallpox until ship's company has been vaccinated. Hospital ships will implement their infection-control procedures relevant to airborne and contact precautions.

c. Air crews on missions away from their home base. After a suspected smallpox outbreak is identified, aircrews at that location will be permitted to depart only after medical coordination with installation and aviation commanders for active questioning about fever and rash, recognizing the risk of spreading infection to the crews' destination(s).

d. Troops deployed outside CONUS. Field medical units will implement isolation procedures to limit disease transmission.

e. Troops deployed outside CONUS intending to return to CONUS. Troops outside CONUS during a smallpox outbreak will be vaccinated before returning to CONUS or promptly upon returning to CONUS. These vaccinated troops will be observed for an appropriate period of time, to rule out disease despite vaccination.

f. Patient movement. Limit the movement and transport of patients with suspected or confirmed smallpox to essential medical transport only. When transport is necessary, minimize the dispersal of respiratory droplets by placing a simple surgical mask on the patient, if possible. The patient will wear clean gown/pajamas when exiting negative airflow room. If the patient is shedding scabs, all the lesions must be securely covered. Tuck pant legs into socks and tuck shirttails into pants. Limit patient movement within an MTF to medically essential testing. If possible, have the patient wash their hands or use an alcohol-based hand-hygiene agent.

g. Discharge management. In general, patients with smallpox will not be discharged from a healthcare facility until they are no longer infectious. However, the number of patients may overwhelm the medical system. Either other facilities may be designated to house these patients or those not needing specialized medical care will be sent home for care. Adapt discharge instructions according to the situation.

h. Post-mortem care. Use standard, airborne, and contact precautions (Appendix C-8) for post-mortem care. Cremation is preferable to burial for the remains of smallpox patients.

APPENDIX C-1
Isolation and Quarantine Guidelines – Summary.

1. Spread. Smallpox is usually spread by exhaled droplets at close range, usually face-to-face (≤ 6 feet) or household contact. Fine-particle aerosols from exhaled droplets of smallpox virus can travel further distances, which warrant airborne precautions.

2. Isolation. Contagious people (those with a rash or scabs) need to be isolated, to prevent contact with nonvaccinated or susceptible people, during their period of infectiousness (from onset of rash until all scabs have fallen off), to limit disease spread. Smallpox patients generally are infectious from first appearance of rash, but the early stages of the rash may be difficult to recognize. Before the rash appears, the patient will run a high fever for 2 to 3 days. Isolation of a possible case from onset of fever will provide enough time to put isolation measures in place before the main infectious period occurs. This isolation strategy, in addition to vaccination of all close contacts to the case, will help sharply limit the spread of smallpox. See Appendix C-10.

3. Quarantine of people exposed to a smallpox case. Use only after obtaining legal counsel. If you restrict movement, you may be responsible for sustaining those restricted. See also Appendix C-9, Appendix C-11, and Appendix C-12.

4. Restriction of Movement: To limit the spread of smallpox, encourage people to be vaccinated and to limit unnecessary public activities. Overly tight restrictions may cause more harm than good, if it keeps people from food or shelter or leads to civil disorder. Exposure to infected people 2 weeks ago may lead to smallpox cases diagnosed tomorrow. In other words, restrictions imposed today will have little value until 2 or more weeks in the future. Restrictions rarely can be implemented tightly enough to be fully protective.

5. Alternative Infection Control. Communities can work together to reduce disease spread.

a. Postpone large public gatherings, until other outbreak control measures in place (e.g., surveillance, vaccination, isolation of cases).

b. Encourage people to make fewer trips to common destinations (e.g., markets).

6. Military installations will develop local plans that identify Airborne Infectious Isolation Rooms (AIIRs). Installations will also identify facilities suitable for Types C and X treatment facilities, in case AIIRs are overwhelmed. Local plans also will address laundry and food service for and disposal of medical waste from non-medical facilities. See Appendix C-4. Early in an outbreak, admission of confirmed or suspected smallpox patients into a hospital facility not designated for the sole purpose of isolating smallpox patients may be unavoidable.

APPENDIX C-2
Acute-Care Guidelines for Isolation & Infection Control.

ACUTE-CARE GUIDELINES FOR ISOLATION & INFECTION CONTROL **Negative Air-Pressure Room – Location(s): _____** **IMPORTANT PHONE NUMBERS:** **Infection Control: _____ ER: _____** **Safety Officer: _____ Infectious Disease: _____**
Patient Room Placement/Requirements (see also Appendix C-7)
Negative pressure (per Military Handbook 1191) – at least 30 feet from exhaust outlets. Exhaust air direct to outdoors. Recirculation permitted in existing facilities if exhaust system equipped for HEPA filtration. CDC: No buildings within 100 feet of exhaust.
Private room
Door closed at all times.
Proper Airborne Infection Isolation Room (AIIR) – Conduct and record daily airflow testing to ensure negative flow unless maximum capacity of negative airflow rooms has been exceeded and patients are cohorted in non-negative pressure areas.
Cohort 'like' patients when private room unavailable.
Isolation Requirements – Strict Adherence is Mandatory
Standard Precautions for all aspects of patient care – Strictly enforced.
Contact Precautions – Place sign on the door. - Fluid-resistant gown and disposable gloves to enter the room. - Disposable gowns – treat as regulated medical waste (RMW). - Cloth gowns will be laundered per facility guidelines for isolation linen. - Respirator/eye shield/face shield for procedures prone to splashing, spraying.
Airborne Precautions – Must be in negative airflow room – Place sign on the door.
Use of NIOSH-approved **N95** particulate respirator by **all** individuals entering the room. - Personnel must be in Respiratory Protection Program.
Alcohol-based hand-hygiene agents before entering room and on exit. Or wash hands with antimicrobial soap.
Monitor staff entrance and exit.
Serve food and sanitize dishes per routine protocols. Ensure dietary staff are trained to wear gloves when handling all soiled dishes from isolation rooms and ensure compliance with water temperatures and detergents.
Cleaning & Disinfection of Equipment
Thorough terminal cleaning of room with hospital-approved disinfectant (HAD).*
Alternative is to also disinfect surfaces with 1 part bleach and 9 parts water (10% solution). Store bleach in an opaque bottle. Label accurately.
Dedicated equipment discarded when the patient is discharged.
Thermometers – Prefer use of glass thermometers or strip type.
Stethoscope and blood-pressure cuff – Dedicated and disposable.
Place linen hamper in the room. See linen management below.
Treat non-regulated medical waste the same as RMW.
RMW handled per MTF policy.

Regulated Medical Waste (RMW) Management
Discard non-sharp RMW in rigid containers lined with red 3-ml leak-proof bags.**
Discard sharps in rigid, puncture-resistant containers.
Dispose of pathological waste into RMW containers lined with RMW bags.
Discard bulk blood, blood products and body fluids in accordance with this plan.
Discard full, partially full or empty vials of smallpox vaccine in sharps containers.
Use carts made of readily cleanable material to transport RMW within the facility.
Clean carts used to transport RMW with EPA-registered hospital disinfectant.
Place RMW bags in leak-proof rigid container marked with Universal Biohazard symbol.
Containers used to transport RMW must comply with 49 CFR and state requirements.
** your state may have a more stringent requirement for RMW bags.
Housekeeping
Trash container emptied and disinfected.
Low dusting and cleaning all exposed surfaces with HAD.*
Patient's bed cleaned and free of soiling & foreign matter.
Fixtures, walls, lights, doorknobs, bedrails, and overbed tables cleaned and free of fingerprints/hand marks with HAD.*
Floor damp-mopped using two-bucket method using HAD.*
Vents, grills, windowsills and blinds damp wiped with HAD.*
Sink and toilet bowl disinfected.
Cotton mop changed after each room and placed into plastic bag for laundering.
Mopping water changed after each room.
Must wear PPE -- NIOSH-appr. N-95 particulate respirator, fluid-resistant gown, gloves.
Linen Management – Additional Detail in Decontamination Guideline
Use leak-proof bags. Label "biohazardous" before moving to linen service area.
Ensure staff are vaccinated and trained appropriately to the risk.
Staff must wear NIOSH-approved N-95 particulate respirator and fluid-resistant gowns and gloves when handling or sorting soiled linens.
Ensure appropriate hot water and dryer temperatures, detergents, bleach used.
Use quality-assurance tool/evaluator to validate linen process.
Patient Transport
Place surgical mask on patient to reduce dispersal of respiratory droplets.
Limit movement to essential medical purposes only.
Thoroughly clean wheelchairs and stretchers with HAD.*
Visitors
Only people who have been vaccinated or are immune by history of smallpox infection may visit.
NIOSH-approved N-95 particulate respirator required.
Adherence to all other aspects of isolation mandatory.
Discharge Management
Home-care providers need to be taught principles of standard precautions.
Not discharged from hospital until determined no longer infectious.

Post-Mortem Care
Follow principles of standard precautions.
Airborne precautions.
- Use of NIOSH-approved **N95** particulate respirator by **everyone** entering the room.
- Negative pressure. Direct exhaust to the outside.
Contact precautions.
Thorough terminal cleaning of room with HAD following autopsy or a fresh solution of 1 part bleach and 9 parts water (10% solution).
Burial / Storage Issues
Cremation is preferred to burial.

*** HAD**: Hospital-approved disinfectant - Tuberculocidal - must be EPA registered. HAD is mixed, used, and labeled per manufacturer's instructions.

Hemorrhagic smallpox has been described as "more contagious" than typical smallpox, perhaps as a result of the additional care provided the acutely ill patient, leading to closer contact with caregivers and increasing exposure risk. In the 21st century, basic hygienic measures and awareness of the mechanisms of disease transmission are much improved. PPE requirements remain the same - regardless of the severity of illness.

APPENDIX C-3
Home Care Guidelines for Isolation.

HOME-CARE GUIDELINES FOR ISOLATION & INFECTION CONTROL IMPORTANT PHONE NUMBERS: Health Department: _____ Physician: _____
Patient Room Requirements
Use private room, if possible. Keep door closed. Avoid close or intimate contact with other family members.
Keep household members in the same state of disease in the same room together ("Cohorting"), if necessary.
Keep infected person home until scabs fall off and no longer contagious.
Isolation Requirements – Strict Adherence is Important
Wash hands with an antibacterial soap if they are visibly soiled. And use an alcohol-based hand rinse frequently, before entering patient's room and on exit.
Wear disposable gloves if you expect to touch blood, body fluids, or pox drainage or scabs from the patient.
Cleaning & Disinfecting Equipment
Thermometers – may use glass thermometers (soak in alcohol after each use) or strip type (use once and throw away).
Housekeeping
Bag trash and use routine disposal for your community.
Empty and disinfect the trash container when visibly soiled. Cover with a lid.
Sanitize dishes with detergent in a dishwasher, if available. If washing by hand, add one capful of household bleach to dish water.
If you use paper plates and plastic utensils, discard them into the household trash.
Clean surfaces, furniture, fixtures, lights, doorknobs, bedrails, tables, and walls thoroughly with household disinfectant (e.g., Lysol), following manufacturer's directions.
An alternative is to disinfect surfaces with solution of 1 part bleach and 9 parts water (10% solution) Store bleach in an opaque bottle. Label accurately.
Clean the sink, tub, and toilet bowl with household disinfectant (e.g., Lysol) daily.
Use a cotton mop to clean the floors in the sick rooms and then launder the mop heads.
Clean carpets and upholstery using an EPA-approved germicidal detergent per manufacturer's recommendations.
Linen Management
Launder bedding, linens, clothing, curtains, or other material that came in contact with smallpox patient in hot water (71ºC or 160ºF, or hottest setting) for an adequate time (e.g., 25 minutes), adding 1 cup of bleach per load. Dry laundry in hot dryer if possible.
Place linen hamper in the patient's room.
Patient Leaving the House. Limit movement to essential medical purposes only.
Place clean pajamas and a surgical mask on patient before leaving the house, to reduce dispersal of droplets.
Thoroughly clean wheelchairs and stretchers with disinfectant.
Visitors
Only people who have been vaccinated may visit.

APPENDIX C-4
Criteria for Type C, X, and R Facilities.

If a large number of smallpox cases overwhelms an MTF's ability to provide triage, treatment, and care of smallpox patients in appropriate Airborne Infection Isolation Rooms (AIIRs), then housing these patients in facilities known as Type C, X, and R facilities is an acceptable means of infection prevention and control. In such cases, follow these criteria:

1. Known or presumed infectious individuals. Isolate members of these groups in a Type C Facility (dedicated isolation facility):

a. People with a compatible illness and laboratory confirmation of smallpox (confirmed case).

b. People with a compatible illness following suspected/known exposure with pending laboratory confirmation (probable case).

c. People referred by an expert as suspected cases of smallpox but who do not have a typical clinical presentation.

Type C (Contagious) Facility: Structure with non-shared ventilation system. Controlled access (e.g., fence, monitored entries). Adequate utilities. Adequate 2-way communication system (e.g., telephone, intercom, Internet). Ability to provide medical care (e.g., IV fluids, medications, skin care, oxygen monitoring, vital signs, CPR, respiratory support, basic laboratory, portable radiology). Patients may be released from a Type C facility only with approval of the designated medical officer.

2. Febrile contacts without rash. Isolate members of these groups in a Type C or preferably a Type X facility: Vaccinated contacts under surveillance who develop oral temperatures ≥ 101º F (38ºC) on two successive readings (but do not have a rash). If rash does not develop within 5 days and the fever is diagnosed as being a result of vaccination or some other non-smallpox-related cause, the contact may be released to complete fever surveillance at home by the designated medical officer.

Type X (Uncertain) Facility: Same isolation and general supply requirements as Type C Facility, but only basic medical services needed (e.g., monitoring vital signs).

3. Asymptomatic Contacts of Smallpox Patients. Isolate members of these groups in Type R = Residential Facilities for 18 days after last exposure or until 14 days following successful vaccination (whichever comes first), by permission of the designated medical officer.

a. Afebrile vaccinated contacts.

b. Afebrile vaccinated individuals who were with a smallpox patient 10 to 18 days before the onset of the patient's rash (possible common exposure).

c. Contacts who refuse smallpox vaccination.

Type R (Residential) Facility: A person's own home. Continue routine daily activities, remaining within ~ 20 miles of their city of residence. Twice-daily temperature readings. Daily telephone contact with health department. If contacts without symptoms cannot be housed in their own residences due to logistical difficulties or other reasons, establish Type R facilities in designated barracks, recreation centers, guest houses, or similar facilities with sleeping accommodations and utilities.

Implementation details appear in Appendix C-5.

APPENDIX C-5
Isolation Procedures.

1. Situation. Patient presents to the urgent care center, clinic, or emergency department.

INFECTION CONTROL PRACTICES

2. For characteristic rashes of smallpox on the face or upper extremities, healthcare personnel will ask the patient to promptly put on a simple surgical mask that they hand to the patient. Immediately notify a nurse or physician, who will place the patient in the airborne isolation holding room number _____located at _____.

3. If an airborne isolation holding room is not immediately available in the clinic, the patient will be given a simple surgical mask and placed in an empty patient exam room with the door closed.

4. Do not allow patient to wait in the common area with other patients. Move the patient to an airborne isolation room for examination. See Patient Placement & Transport and Appendix C-7.

5. Start CONTACT and AIRBORNE PRECAUTIONS immediately (Appendix C-8). ALL staff members will don NIOSH-approved N95 respirator, gown, and gloves. Use eye protection if there is a risk of body fluids splashing or spraying.

6. Remove gowns and gloves before leaving the patient room.

7. HANDWASHING AFTER ENTERING ROOM WITH ANTIMICROBIAL SOAP IS MANDATORY. Waterless hand-hygiene agents may be used as a supplement to washing with soap and water.

8. Use disposable equipment or clean durable equipment using the hospital-approved disinfectant. Or use dedicated-patient equipment as much as possible. Also follow this procedure with diagnostic equipment (e.g., stethoscopes, reflex hammers) used in the patient room.

9. Handle linen according to MTF policies for isolation-room linen.

10. People who handle soiled linen will be vaccinated and wear fit-tested NIOSH-approved N95 particulate respirators, as part of their PPE.

CLINICAL EVALUATION & TREATMENT

11. Clinical Condition.

a. Patient History. 1 to 2 days of influenza-like symptoms (e.g., high fever, headache, severe backache, malaise, myalgia, nausea, vomiting).

b. Synchronous rash (lesions all at same state of development) on face, forearms, hands (including palms) that may have spread to legs (including soles of feet) and/or trunk. Rash may have progressed to the vesiculo-papular (blistery, bumpy) stage.

12. Release clinical specimens only to the FBI or to Health Department officials with a documented established chain-of-custody. See Annex D. Send samples only to a facility designated by the CDC. Laboratory/Pathology Service will provide appropriate containers and packaging for transport of specimens that meet packaging requirements for Infectious Substance Packaging will be kept in the location _____.

13. If physician suspects smallpox, initiate an emergency telephonic infectious-disease and/or dermatology consult. The patient will remain in the airborne isolation room. Staff will come to the room to evaluate the patient. If the patient needs a chest radiograph (CXR), bring portable x-ray equipment to the patient, if possible.

14. Consult infectious-disease or other medical services, as appropriate. Consider treatment with cidofovir as an investigational new drug (IND) (Annex G).

NOTIFICATION

15. **Internal Notification**. The attending physician or charge nurse will notify
Chief, Infectious Diseases Section, Dr. _____ @ xxx-xxxx or
ID Consult Attending (Operator)/ID fellow _____@ xxx-xxxx
AND the Infection Control Officer _____ @ xxx-xxxx
for any suspected smallpox case. Use the emergency call roster during any off-duty tour or if unable to reach the initial contact person.

16. The Infection Control Officer will notify the MTF leadership promptly:
MTF commander _____
MTF chief of staff (deputy commander for administration) _____,
MTF deputy commander for clinical services _____,
and the MTF Nursing Administrator _____

17. **External Notification**. Specific policies for reporting smallpox cases outside the MTF are described in Annex A. In brief, (a) submit a report immediately through established Service disease-reporting systems, beginning with the local preventive-medicine/public-health service, (b) submit a Serious Incident Report (SIR) to higher military headquarters, (c) notify CDC Emergency Preparedness & Response Branch (770-488-7100), (d) notify state health department, then (e) notify other appropriate authorities (e.g., local health department).

PATIENT PLACEMENT & TRANSPORT (see also Appendix C-7).

18. Place suspect or confirmed smallpox patients in an airborne isolation room in designated location_____.

19. Place critically-ill suspected/confirmed patient in designated location_____.

20. Hospitalized patients who may be exposed should be grouped together (cohorted). Optimally, staff members caring for suspected smallpox patients or hospitalized exposed patients should care for only this designated group of patients.

21. Limit transport of patient within the facility to only initial placement and movement most essential to patient care. This includes appropriate bathing, clean clothing, and placement of simple surgical mask on the patient before transport.

22. Remove unnecessary items from ambulances to avoid contamination and facilitate decontamination. Vaccinate patient transport personnel before transport or within 24 hours. Equip ambulance with appropriate supplies (e.g., NIOSH-approved N95 respirators (if fit-tested), disposable gloves, gowns, biohazard bags). Decontaminate ambulance before reuse to transport patients not infected with smallpox.

23. Cover patients in transport in a sheet, gloves and simple surgical mask. Transport personnel will also wear gown, gloves and NIOSH-approved N95 particulate respirator. Secure transport elevators using the key system. Transport the patient as the sole occupant of the elevator. Use the route with the least contact with other people.

24. Transport of patients to a designated location outside of the facility will be determined by joint decision of MTF leadership and the receiving facility.

25. If a large number of smallpox cases overwhelms an MTF's ability to provide triage, treatment, and care of smallpox patients in appropriate Airborne Infection Isolation Rooms (AIIRs), then housing these patients in facilities known as Type C, X, and R facilities is an acceptable means of infection prevention and control. Type C facilities and Type X facilities will establish lists of vaccinated people who may enter the facility. This should be the smallest number of people required for patient care, investigation, and facility maintenance. The nurse on duty or other personnel responsible for monitoring access to and egress from the facility should keep the list. All personnel who enter should have been recently vaccinated (within 3 to 10 years). All personnel should monitor themselves for fever every 12 hours, until confirmation of successful vaccination. At the beginning of each shift, all staff members will present to the person responsible for coordinating employee illness surveillance to report any temperatures or other illness. On days they are not at the facility, staff members are required to call in by telephone each morning to report their temperatures. Once successful vaccination has been confirmed, personnel are not required to routinely check their temperatures, however, they are still required to report any illness to people coordinating employee illness surveillance.

26. Arrange to have food prepared on the premises or brought into the facility in disposable containers, if possible. Otherwise, all serving ware, plates, cups, and utensils can be safely sanitized in a standard dishwasher.

EMPLOYEE AND PATIENT EXPOSURES.

27. Infection control service will establish patient and employee exposure cohorts in consultation with the chief of the Infectious disease section. Employee cohorts and vaccination will be managed and tracked by the employee health service. All personnel caring for and transporting smallpox patients will be vaccinated, as well as affected laundry workers, and waste-disposal personnel.

28. Patient exposures within the facility cohorts will be managed by infection control service, with assistance from department of nursing and preventive-medicine/public-health personnel.

29. Individuals are considered infectious from the onset of their eruptive exanthem (rash) until separation of all scabs.

APPENDIX C-6
Exposure Definitions.

1. Face-to-face close contacts (≤ 6 feet), or household contacts to smallpox patients after the onset of the smallpox patient's fever. Note A.

2. People exposed to the initial release of the virus, if the release was discovered during the first generation of cases and vaccination may still provide benefit.

3. Household members (without contraindications to vaccination) of contacts to smallpox patients. This will help protect household contacts should smallpox case contacts develop disease while under fever surveillance at home. Note B.

4. People involved in the direct medical care, public-health evaluation, or transportation of confirmed or suspected smallpox patients. Note C.

5. Laboratory personnel involved in the collection and/or processing of clinical specimens from suspected or confirmed smallpox patients.

6. Other people who have a high likelihood of exposure to infectious materials (e.g., hospital waste disposal, laundry services, housekeeping, contact tracing, vaccination, isolation or enforcement, law-enforcement interviews of suspected smallpox patients). Note C.

7. People permitted to enter any facilities designated for the evaluation, treatment, or isolation of confirmed or suspected smallpox patients (only essential personnel should be allowed to enter such facilities). Note D.

8. People present in a facility or conveyance with a smallpox case, if fine-particle aerosol transmission was likely during the time the case was present (e.g., hemorrhagic smallpox case, case with active coughing). Note E.

Note A. Although people with smallpox are not infectious until the onset of rash, vaccinating contacts from onset of fever helps provide a buffer and assures that contacts who may have been exposed at the early onset of rash, when the rash may have been faint and unrecognized, have been vaccinated.

Note B. Household members of contacts who have contraindications to vaccination should be housed separately from the other vaccinated household members until the vaccination-site scab separates (~ 2 weeks), to prevent inadvertent transmission of vaccinia virus. Household members of contacts also should be housed separately from the contact until the incubation period for smallpox has passed and the designated medical officer releases the contact from surveillance.

Note C. Includes personnel whose public-health activities involve direct patient contact such as case interviewing.

Note D. Choose only personnel without contraindications to vaccination for activities that would require vaccination for their protection. Personnel with contraindications should not perform duties that would place them at risk for smallpox exposure and should otherwise only be vaccinated if an exposure has already occurred.

Note E. Evaluation of the potential risk for aerosol transmission and initiation of vaccination for non-direct contacts will be done by federal, state, and local public-health personnel. The decision to offer vaccination to non-direct contacts of smallpox cases will be made jointly by federal and state health officials.

APPENDIX C-7
Patient Placement Considerations.

1. Patient placement depends upon clinical presentation and physical-plant capabilities of the facility. Each of the following groups of patients has specific isolation considerations.

- People known or presumed to be infectious.
- People with a compatible illness and laboratory confirmation of smallpox (confirmed case).
- People with a compatible illness after suspected or known exposure, with pending laboratory confirmation (probable case).
- People referred by an expert as suspected cases of smallpox, but who do not have a typical clinical presentation.
- Vaccinated Contacts with Fever but without Rash: Vaccinated contacts under surveillance who become febrile with oral temperatures ≥101º F (38ºC) on two successive readings, but do not have a rash.
- Asymptomatic Contacts.
    - Afebrile vaccinated contacts.
    - Afebrile vaccinated individuals who were with a smallpox patient 10 to 18 days before the onset of the patient's rash (possible common exposure).
    - Contacts who refuse vaccination.

2. Healthcare facilities without patient rooms appropriate for airborne precautions (Appendix C-8) will have a plan for transfer of suspected or confirmed smallpox patients to other facilities with appropriate airborne isolation environments. Existing facilities could substantially benefit from dedicating resources to ensuring appropriate air handling and ventilation systems for existing clinics, emergency departments, and isolation rooms. This would provide the added benefit of controlling more likely exposures to infectious droplet nuclei (e.g., tuberculosis, disseminated varicella zoster, chicken pox, measles), in addition to minimizing or eliminating the likelihood of intra-facility transmission of smallpox.

3. Patient placement in a private room is preferred. However, in the event of a large outbreak, patients who have active infections with the same disease (i.e., smallpox) may be cohorted in rooms that meet appropriate ventilation and airflow requirements for airborne precautions (Appendix C-8).

APPENDIX C-8
Infection-Control Precaution Categories.

Category	Negative-Pressure Room	Respirator (NIOSH-approved N95)	Gown, Face Mask, Eye Shield	Gloves	Applicable Diseases
Standard *	No	No	If splashing likely.	Before touching blood or body fluids or non-intact skin.	All
Airborne	Yes	Yes	If splashing likely.	Before touching blood or body fluids or non-intact skin.	Tuberculosis, varicella zoster, measles, smallpox @
Contact	No	Only for other isolation needs	Yes #	Yes #	Enteric diseases, lice, smallpox, viral hemorrhagic diseases. Patients colonized or infected with antibiotic-resistant organisms.
Droplet	No	Yes, if coming within 3 feet of patient. Simple surgical mask is sufficient.	If splashing likely. %	Before touching blood or body fluids or non-intact skin. %	*Neisseria meningitidis*, diphtheria, pneumonic plague

* To protect your mucous membranes or nonintact skin from anticipated contact with any blood or any body fluids from all patients at all times.

@ Gown and gloves may be needed to protect you from drainage from weeping smallpox lesions or scabs, so you do not accidentally take germs to the next patient.

Gown and gloves protect you from drainage from weeping smallpox lesions, drainage from wounds, and lice, lessening the chance that personnel will accidentally convey infectious materials from one patient to another.

% Gown and gloves may be needed to protect you from secretions from coughing or sneezing patients or where there is gross environmental contamination.

Adapted from Hospital Infection Control Practices Advisory Committee:
http://www.cdc.gov/ncidod/hip/isolat/isopart2.htm

APPENDIX C-9
Issues in Quarantine.

1. Introduction. Limited experience with the application and success of various quarantine measures precludes inclusion of standardized guidelines for the implementation of such measures during a bioterrorism event. State quarantine laws are dated and varied. The division of legal authority between the state and Federal governments requires rapid and efficient coordination of actions to provide a public-health response. Such coordination is an essential part of planning. Both state and federal public-health officials need to develop plans for the implementation and logistics of both individual and population level quarantine measures under their current authorities.

2. Potential Quarantine Actions.

a. State Quarantine Laws. The major source of legal authority for public-health interventions is the police power, the inherent authority of all sovereign governments to enact laws and promote regulations that safeguard the health, welfare, and morals of its citizens. The 10th Amendment to the U.S. Constitution reserves to the States all powers not expressly granted to the Federal government nor otherwise prohibited by the Constitution, including the police power. The courts have repeatedly held that state quarantine laws are a proper exercise of their police power. Such laws, for example, may be used to detain individuals within a circumscribed area and to exclude healthy persons from entering the area. Assuming that legal authorities are sufficient to allow public health officers to use personal control measures, many practical questions remain: (1) who enforces a quarantine, (2) who detains an infected or exposed person, (3) how due process is accommodated, and (4) what actions government may take if a person disobeys a quarantine order.

b. CDC Guide C lists public-health powers needed for adequate response to a bioterrorism event. That list appears below, with an annotation of its applicability on military installations. Military commanders' actions regarding isolation or quarantine on a military installation of infected or possibly infected DoD and non-DoD personnel will be determined by the nature of the outbreak and the laws, regulations and policies concerning those specific types of situations. Commanders must obtain legal advice on individual situations from their legal advisors.

(1) Collection of Records and Data.

(a) CDC Guide C discusses: Reporting of diseases, unusual clusters, and suspicious events. Access to hospital and provider records. Data sharing with law-enforcement agencies. Veterinary reporting. Reporting of work-place absenteeism. Reporting from pharmacies.

(b) DoD Application. Service regulations mandate disease reporting within the Military Health System. Commanders are generally responsible for the health of Service Members in their commands. Commanders are also responsible for worksite safety. Commanders are authorized to use government-owned medical (including pharmacy) records for official purposes to preserve public health and safety.

(2) Control of Property.

(a) CDC Guide C discusses: Right of access to suspicious premises. Emergency closure of facilities. Temporary use of hospitals and ability to transfer patients. Temporary use of hotel rooms and drive-through facilities. Procurement or confiscation of medicines and vaccines. Seizure of cell phones and other “walkie-talkie” type equipment. Decontamination of buildings. Seizure and destruction of contaminated articles.

(b) DoD Application. Military installations, buildings, and equipment are federal property. Penalties for violating orders for the protection or security of installations provided at 50 USC 797 (Internal Security Act of 1950). Seizure of personal property requires legal consultation before action.

(3) Management of Persons.

(a) CDC Guide C discusses: Identification of exposed persons. Mandatory medical examinations. Mandatory vaccination of civilians. Collect lab specimens and perform tests. Rationing of medicines. Tracking and follow-up of persons. Isolation and quarantine. Logistical authority for patient management. Enforcement authority through police or National Guard. Suspension of licensing authority for medical personnel from outside jurisdictions. Authorization of other doctors to perform functions of medical examiner.

(b) DoD Application. Military commanders are responsible to protect personnel and property, maintain good order and discipline, and ensure successful performance of military missions. Military commanders may remove or exclude a person from an installation or take other actions relating to ingress or egress for the protection or security of the installation (18 USC 1382; 50 USC 797), subject to judicial review. Under the Posse Comitatus Act (18 USC 1385), military personnel generally may not assist local law-enforcement officials in enforcing civilian laws, except where authorized by the Constitution or Act of Congress. Thus, military police often detain civilians until civilian police can be called, rather than arresting them outright. By analogy, it may be preferable to avoid involuntarily locating any civilian in a DoD-managed isolation facility, but rather detaining that person until local civilian public-health authorities arrange for similar surveillance in civilian-managed facilities. Seek local legal advice on specific circumstances.

(4) Access to Communications and Public Relations.

(a) CDC Guide C discusses: Identification of public health officers (e.g., badges). Dissemination of accurate information. Establishment of a command center. Access to elected officials. Access to experts in human relations and post-traumatic stress syndrome. Diversity in training, cultural differences, dissemination of information in multiple languages.

(b) DoD Application. Consistent will military missions.

(5) Legal Advice to Commanders. Commanders should seek legal counsel from staff judge advocates before exercising any nonstandard authority.

3. Federal Assistance in Enforcement of State Quarantine. Federal assistance may be provided by and through CDC to state and local authorities in enforcing their quarantine and other health regulations pursuant to section 311 of the Public Health Service Act. (42 USC 243(a)). In addition, while intrastate control of communicable diseases generally may be the purview of state and local officials, CDC's domestic quarantine regulations authorize Federal intervention "in the event of inadequate local control." See 42 CFR 70.2 and 21 CFR 1240.30.

4. Federal Intervention When State Response is Inadequate. While the Constitution reserves the police power to the States, the Federal government has extensive authority over public health under the Commerce Clause of the U.S. Constitution, which grants the Federal government the exclusive power to regulate interstate and foreign commerce. Under 42 U.S.C. § 264, the Secretary of Health and Human Services may issue regulations necessary to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the United States and from one state or possession into another. The statute defines interstate movement to include authority over individuals who might expose other persons engaged in travel to other States. The current implementing regulations, found at 42 CFR Part 70, authorize:

a. Imposition of permit requirements by the Surgeon General of the Public Health Service for interstate travel, or travel on conveyances engaged in interstate traffic, applicable to any person in the communicable period of smallpox, or who, having been exposed to smallpox, is in the incubation period (42 CFR 70.5(a)).

b. Federal enforcement of State-required travel permits (42 CFR 70.3).

c. Imposition of disease mitigation requirements and reporting for interstate carriers transporting infected individuals or those suspected of infection (42 CFR 70.5(b) and 70.4)).

d. These regulations, through section 70.2, authorize action by the Centers for Disease Control and Prevention in the event that measures taken by local and State health authorities are insufficient to prevent the spread of smallpox to other States. The Director of the CDC is empowered to "take such measures to prevent such spread of the diseases as he/she deems reasonably necessary, including inspection, fumigation,

disinfection, sanitation, pest extermination, and destruction of animals or articles believed to be sources of infection." This section, in conjunction with other sections of the interstate quarantine regulations, authorizes the apprehension and examination of "any individual reasonably believed to be infected with a communicable disease in a communicable stage," so long as the individual either is "moving or about the move from a State to another State," or is "a probable source of infection to individuals who, while infected with such diseases in a communicable stage, will be moving from a State to another State."

5. Imposing Quarantine. The successful implementation of individual and population-level quarantine measures hinge on numerous factors, including (a) prior identification of legal authority empowered to invoke and enforce such authorities, (b) public trust and compliance with government directives, and (c) assured vaccination and other protection of personnel required to implement and enforce quarantine measures.

a. Factors Affecting Policy (Appendix C-11). The determinants that contribute to reaching the public-health threshold for initiating population-wide quarantine measures include (a) the number of cases and exposed people, (b) the projected morbidity and mortality, (c) the expected ease and rapidity of spread of disease, (d) current patterns of movement in and out of the community, (e) available resources for implementing measures of treatment and control, (f) perceived or actual need for urgent public health action, (g) and the risk for public panic.

b. Cordon Sanitaire. The first approach would be to apply concentric levels of quarantine to restrict movement of individuals and conveyances between communities ("cordon sanitaire") in an effort to control the spread of smallpox. In addition to enforcement activities, other considerations and strategies that should be taken into account when implementing quarantine measures include:

(1) Communication strategies (e.g., issuing travel alerts and press releases and notification of interagency partners)

(2) Movement of essential personnel (e.g., rescue workers and first responders), and requirements for their validation of movement, into and out of the quarantined area.

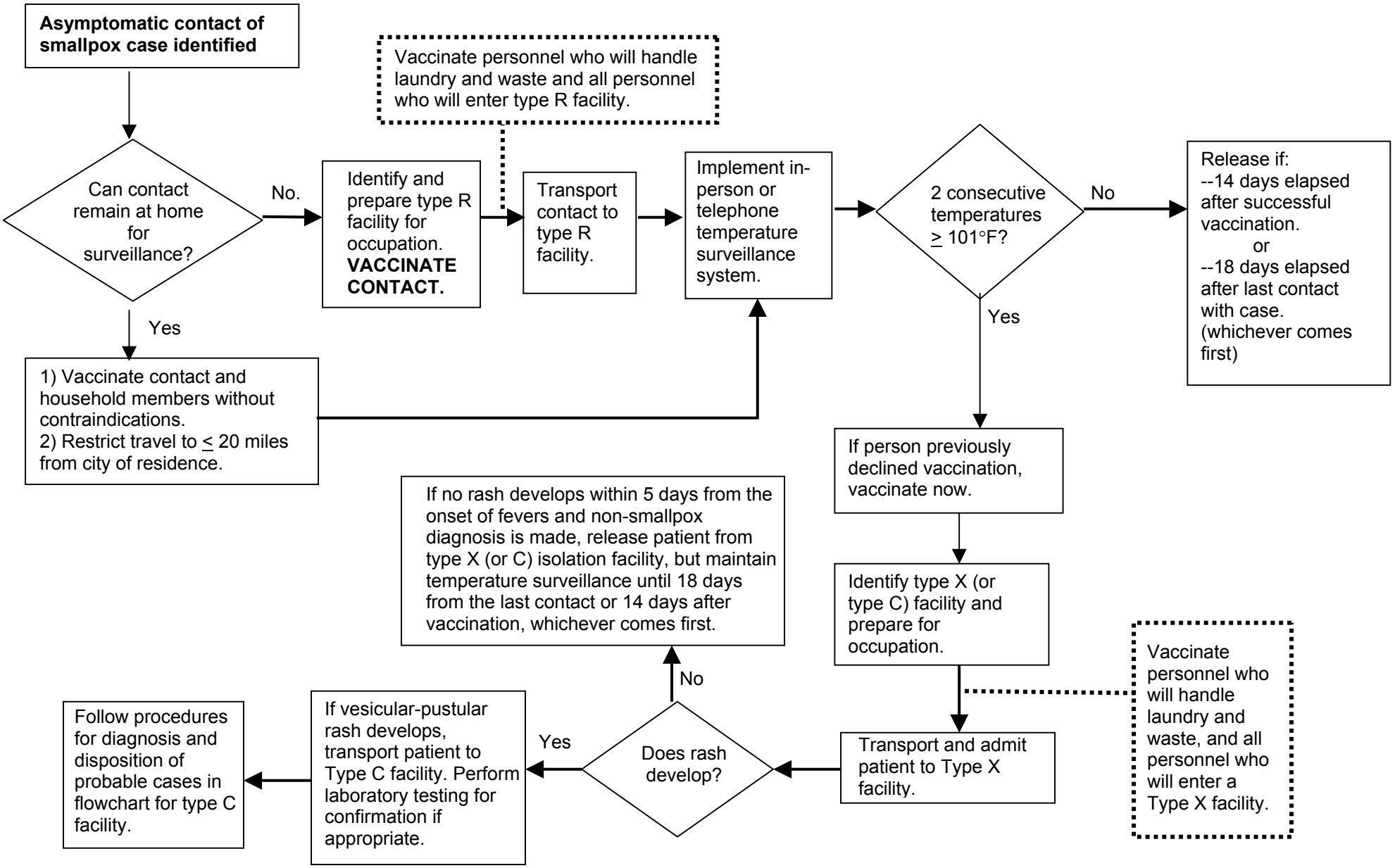
(3) Movement of materials (e.g., food, medical supplies, and garbage) into and out of the quarantined area, and provision of essential services (e.g. utilities, water).

(4) Movement of individuals out of the quarantined area for legitimate health and safety reasons (e.g. need for specialized and unavailable medical care or facility).

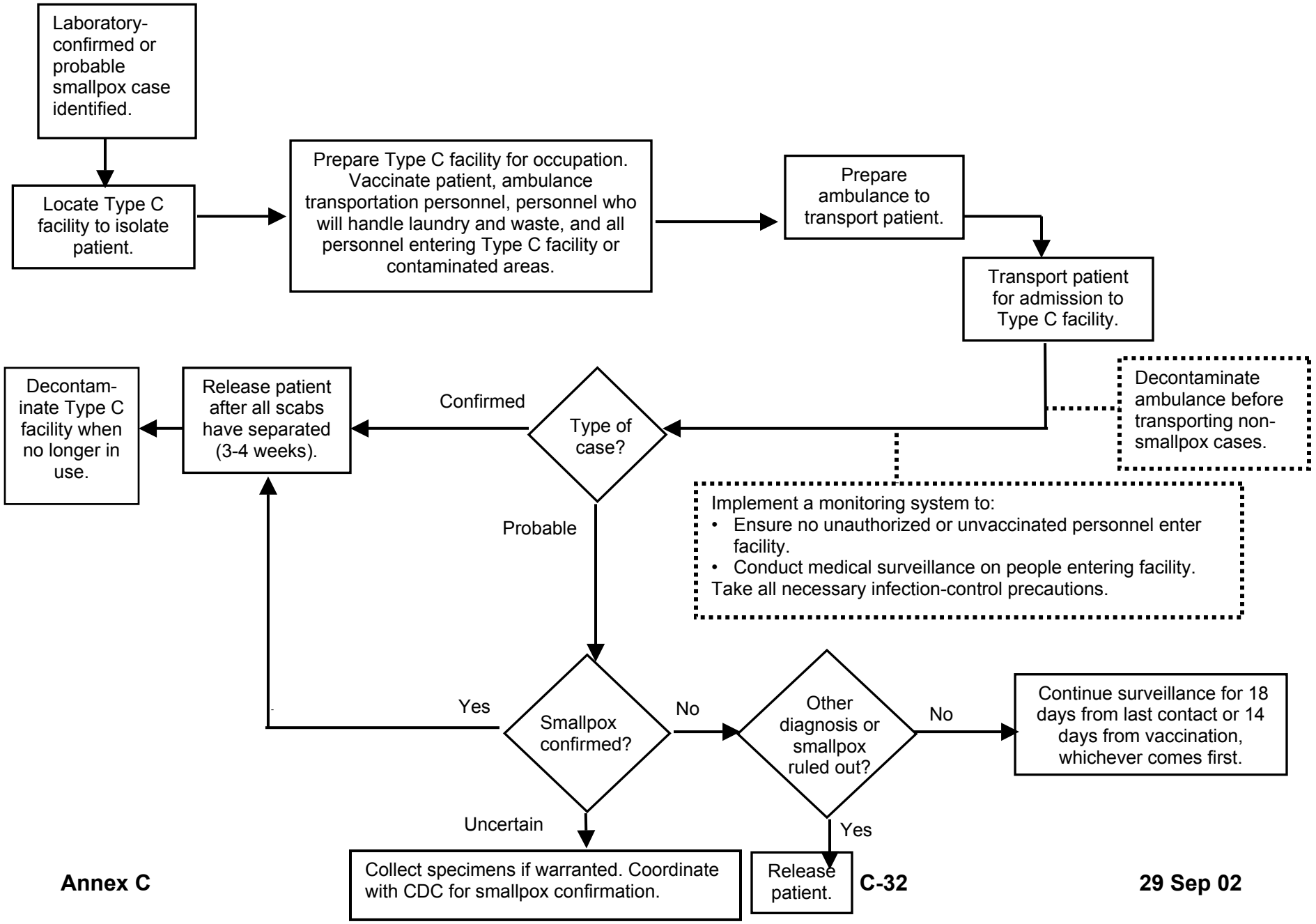
(5) Community-wide intervention strategies (e.g., mass vaccination).

c. When implementing the quarantine of an individual or a community or other population, consider the requirements necessary to terminate quarantine measures. For individuals, ongoing monitoring for disease manifestations or lack of such developments

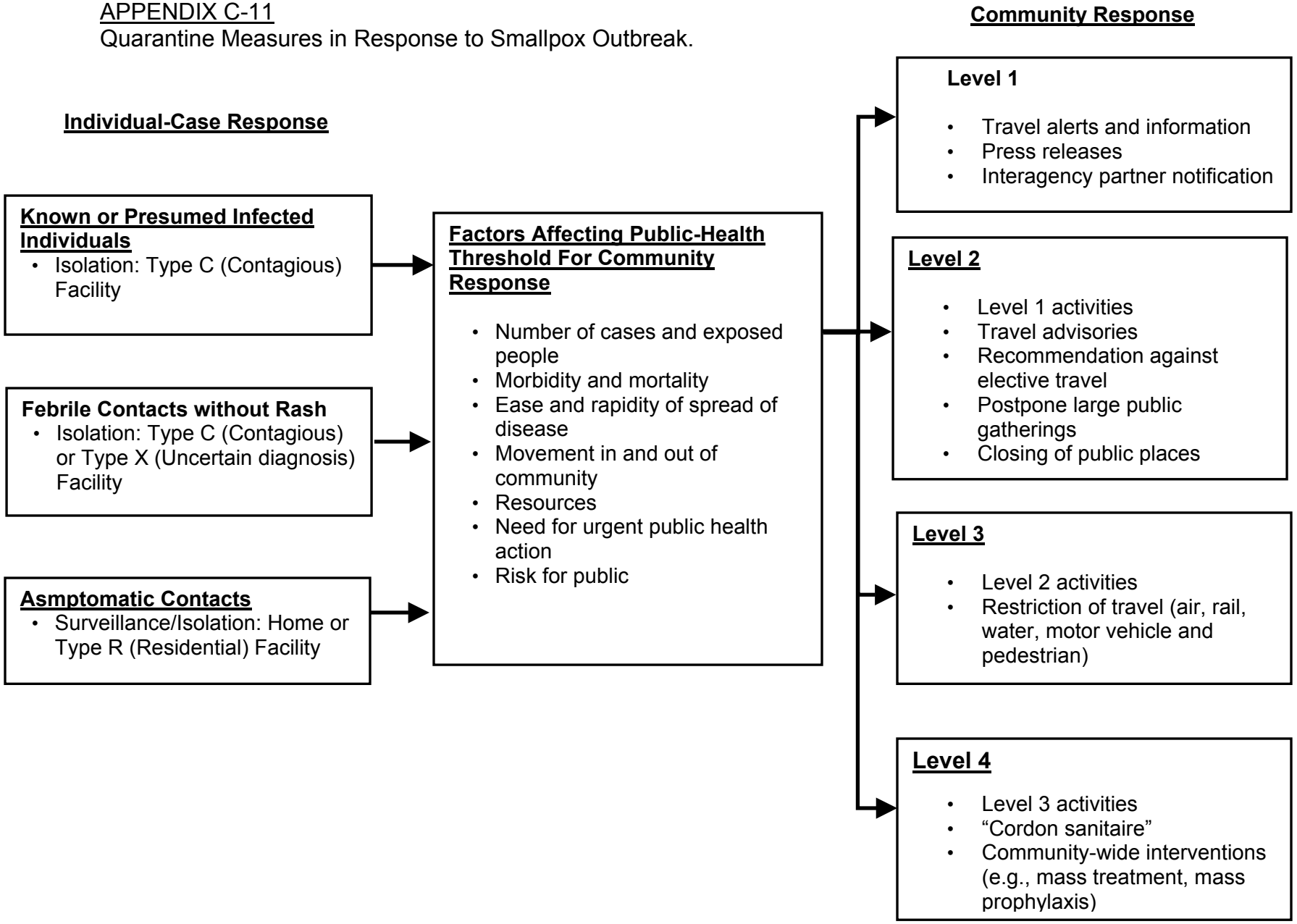
during the longest usual communicable or incubation or communicable period for smallpox will determine the effectiveness of quarantine activities. At the population level, continued surveillance for lack of new cases in the quarantined area, and no demonstrated spread to contiguous areas will be important measures of containment and control activities.


Asymptomatic contact of smallpox case identified
Can contact remain at home for surveillance?
No.
Yes
Identify and prepare type R facility for occupation. VACCINATE CONTACT.
Vaccinate personnel who will handle laundry and waste and all personnel who will enter type R facility.
Transport contact to type R facility.
Implement in-person or telephone temperature surveillance system.
2 consecutive temperatures ≥ 101°F?
No
Release if:
--14 days elapsed after successful vaccination.
or
--18 days elapsed after last contact with case.
(whichever comes first)
Yes
1) Vaccinate contact and household members without contraindications.
2) Restrict travel to ≤ 20 miles from city of residence.
If person previously declined vaccination, vaccinate now.
Identify type X (or type C) facility and prepare for occupation.
Vaccinate personnel who will handle laundry and waste, and all personnel who will enter a Type X facility.
Transport and admit patient to Type X facility.
Does rash develop?
Yes
No
If vesicular-pustular rash develops, transport patient to Type C facility. Perform laboratory testing for confirmation if appropriate.
If no rash develops within 5 days from the onset of fevers and non-smallpox diagnosis is made, release patient from type X (or C) isolation facility, but maintain temperature surveillance until 18 days from the last contact or 14 days after vaccination, whichever comes first.
Follow procedures for diagnosis and disposition of probable cases in flowchart for type C facility.

Isolation Flow Chart, part 2.



APPENDIX C-11
Quarantine Measures in Response to Smallpox Outbreak.



APPENDIX C-12
Quarantine Regulations of the Armed Forces Pertaining to Ships, Aircraft, and Other Conveyances.

Selected Passages from: Army Regulation 40-12, SECNAVINST 6210.2A, Air Force Regulation 161-4. Quarantine Regulations of the Armed Forces. 24 January 1992. http://www.usapa.army.mil/pdffiles/r40_12.pdf.

1. PURPOSE AND SCOPE. These regulations conform to regulations of the United States Departments of Health and Human Services; Agriculture; Treasury; Interior; and Commerce. The regulations are intended to prevent the introduction and dissemination, domestically or elsewhere, of diseases of humans, plants and animals, prohibited or illegally taken wildlife, arthropod vectors, and pests of health and agricultural importance. Introduction and dissemination may occur by movements of vessels, aircraft, or other transport of the Armed Forces arriving at or leaving Armed Forces installations in the United States and foreign countries or ports or other facilities under the jurisdiction of the above Federal agencies in the United States and its territories, commonwealths, and possessions.

…

3. COOPERATION WITH OTHER AGENCIES. To fully comply with the quarantine regulations of the executive departments referred to above, full cooperation will be given at all times to officials of these agencies. Inspectors of the above services are authorized to board ships, aircraft, and any other means of conveyance of the Armed Forces and to inspect ports and other facilities. Commanders will provide full support for inspections. Cooperation will be given to foreign officials following applicable host country agreements. All examinations will be subject to all restrictions necessary to preserve the security of classified material.

…

5. QUARANTINE REQUIREMENTS. Ships, aircraft, or other conveyances of the Armed Forces proceeding to a foreign port will meet the quarantine requirements published by proper authority for such port. The U.S. Government asserts the full panoply of rights of sovereign immunity with respect to U.S. warships and military aircraft, USNS vessels, and afloat prepositioning force ships. They will not be subject to inspections or searches by officials for any purpose. Commanding officers, masters, and aircraft commanders may certify compliance with quarantine regulations and restrictions to foreign health officials. If requested by host authorities, certification may include a general description of measures taken by U.S. officials in compliance with local requirements. At the discretion of the commanding officer, master, or aircraft commander, foreign health officials may be received on board for the purpose of receiving certification of compliance. Such officials may not, however, inspect the ship or aircraft, or act as

observers while U.S. personnel conduct such inspections. Actions by foreign officials inconsistent with this guidance must be reported immediately to the chain of command and U.S. embassy.

…

Public Health Service Requirements – Surface Transportation.

7. PREDEPARTURE REQUIREMENTS.

a. The commanding officer of a ship will comply with sanitary measures prescribed by the health authorities in the port of departure to prevent the embarking of persons infected with a quarantinable disease or the introduction on board the ship of possible agents of infection or vectors of a quarantinable disease. The quarantinable diseases are cholera, plague, and yellow fever.

Note. The U.S. Public Health Service, under the authority of an Executive Order signed by the President of the United States (E.) 12452 of December 22, 1983) and CFR Part 71 has the authority to detain, isolate, or place under surveillance individuals believed to be infected with 4 diseases in addition to those listed above. The 4 diseases are: diphtheria, infectious tuberculosis, suspected smallpox, and suspected viral hemorrhagic fevers (Lassa, Marburg, Ebola, Congo-Crimean, and others not yet isolated or named).

b. Those measures outlined in sections IV and V for domestic quarantines will be applied to ship predeparture and arrival requirements, as applicable.

8. PROCEDURES APPLICABLE TO ARRIVAL AT U.S. PORTS.

a. Public health quarantine procedures are required for ships which, in the last 15 days prior to arrival in the U.S. or since departure from the last U.S. port (whichever period is shorter) have or have had any passengers or crew on board with the following conditions or illness:

(1) Has a temperature of 100°F (38°C) or greater accompanied by a rash, glandular swelling, or jaundice, or which has persisted for more than 48 hours.

(2) Has diarrhea, defined as the occurrence in a 24-hour period of three or more loose stools or of a greater than normal (for the person) amount of loose stool.

(3) Death due to illness other than battle causalities or physical injuries.

b. When one or more of the above conditions exist, the commanding officer of a ship, or senior officer of a group of ships will, between 12 and 72 hours prior to arrival, forward a radio report or message of conditions to the senior naval officer in command at the port of arrival. For ships of the other Armed Forces, the report will be sent to such

authority as appropriate and to the local port authority. Send information copies to the military quarantine inspector and to the responsible local preventive-medicine/public-health service in the port area. A reply confirming receipt of the radio message or report will be made if circumstances indicate and will contain applicable quarantine instructions. Unless otherwise indicated in the reply, a ship may proceed directly to berth and begin normal business activity. This quarantine procedure does not exempt a ship from control measures or public health inspection subsequently deemed necessary, or from the requirements of other Government agencies. When illness is reported or if the ship has been in a plague-infected country, appropriate inspections may be required.

…

11. QUARANTINE PROCEDURES FOR AIRCRAFT ARRIVING IN FOREIGN COUNTRIES.

a. When flights are contemplated to foreign countries or landing is to be made at any airport not under Armed Forces jurisdiction, the aircraft commander will abide by the medical and agricultural quarantine regulations published for landing at the airport concerned. (See USAF Foreign Clearance Guide, AFR 8-5, and OPNAVINST 3710.2E for individual country requirements.)

b. Commanders of Armed Forces installations located in foreign countries will publish local directives to assure that agricultural and public health quarantine requirements and procedures of the host country are observed by arriving aircraft. Overseas commanders will recommend changes to AFR 8-5 if indicated. Suggested changes to AFR 8-5 must be sent to HQUSAF/XOXXG, Washington, DC 20330.

12. QUARANTINE RESPONSIBILITIES OF AIRCRAFT COMMANDERS.

a. AR 40-562/NAVMEDCOMINST 6230.3/AFR 161-13/CGCOMDTINST M6230.4D, paragraph 2, task port commanders with the responsibility for ensuring that travelers meet the immunization requirements for the areas to which they are traveling.

b. On each flight to the United States, its territories, commonwealth, or possessions, when illness has occurred characterized by the signs and symptoms in paragraph 8a(1) and (2), the aircraft commander will send a radio message requesting an inspection by the military or public health quarantine inspectors. The request should be made at the earliest feasible time at which contact can be made with the airport of arrival. Upon landing, all persons must be placed in a suitable isolation area by the aircraft commander until released by designated Armed Forces quarantine personnel. SECTION-III IMPORTANCE OF PLANTS, PLANT PRODUCTS, SOIL, PLANT PESTS, BIRDS, ANIMALS, ANIMAL PRODUCTS, GARBAGE, AND INFECTIOUS AGENTS

…

17. GENERAL. The entry into the United States, its territories, commonwealths, and possessions of certain items specified in paragraphs 21 and 22 and their means of conveyance is prohibited or restricted by regulations and instructions administered by the USDA; Customs Service of the U.S. Treasury Department, the U.S. Public Health Service (USPHS), the Food and Drug Administration, U.S. Department of Health and Human Services (USDHHS); and the U.S. Department of Interior. (The movement of such materials and their means of conveyance from Hawaii, Puerto Rico, the United States Virgin Islands, Guam, or other U.S. territories and commonwealths to other parts of the United States is prohibited or restricted in various ways by regulations administered by the USDA (sec. IV).) These regulations and instructions are designed to prevent the introduction and dissemination of human, plant, and animal diseases, and vectors and pests of medical or agricultural importance, and the introduction of prohibited or illegally taken wildlife.

…

Section V. INTERSTATE MOVEMENT OF ETIOLOGIC AGENTS.

27. GENERAL. The interstate movement within the United States of etiologic agents is regulated by section 72.3, part 72, title 42, Code of Federal Regulations of the United States Public Health Service (USPHS) Regulations. These regulations are designed to prevent the spread of disease from one State to another. The USPHS enforces these regulations and the State health departments cooperate in this activity. Military commanders will establish and maintain liaison as needed with the USPHS and the following regional offices: ….

28. ETIOLOGIC AGENTS.

a. For the purpose of this section, an etiologic agent is defined as a viable microorganism or its toxin which causes or may cause human disease. These include bacterial, fungal, viral, rickettsial, and chlamydial agents. A complete listing of the etiologic agents is contained in section 72.3 of part 72, title 42, Code of Federal Regulations.

b. Packaging, labeling, and shipment requirements applicable to the transportation of etiologic agents in interstate commerce are also contained in section 72.3 of part 72, title 42, Code of Federal Regulations. An etiologic agent/biomedical material label, issued by the Centers for Disease Control, will be attached to each package or container of a shipment made within the United States. This label is stocked by the Defense Personnel Support Center, Medical Material Directorate, 2800 South 20th Street, Philadelphia, PA 19101, as a medical stock item NSN 7690-00-082-9705. The packaging procedures outlined for importing etiologic agents in paragraph 19a(3) apply to interstate shipments.

c. Additional instructions and regulations may be obtained by communicating directly with the appropriate Surgeon General; the Director, Centers for Disease Control,

Attention: Office of Biosafety, Atlanta, GA 30333; or with the nearest Public Health Service regional office.

d. Each service of the Armed Forces will implement policy on the preparation and forwarding of annual reports from respective activities under the permit to Director, Centers for Disease Control, Attention: Office of Biosafety, Atlanta, GA 30333.

APPENDIX C-13
Glossary of Infection-Control Terms.

Airborne Infectious Isolation Room (AIIR): Rooms designed with special air-handling and ventilation to reduce the risk of airborne transmission of infectious agents.

Cohorting: Placing of patients with the same illness but no other transmission-based infections in rooms together, considering other relevant factors (e.g., age, sex, room size, staffing patterns).

Cordon Sanitaire (sanitary barrier). Concentric levels of quarantine to restrict movement of individuals and conveyances between communities, to control the spread of disease.

Disaster Medical Assistance Team (DMAT). Personnel designated to assist in providing triage, patient care, medical or surgical stabilization, and continued monitoring until patients can be evacuated to other locations for definitive care.

Etiologic Agent. A viable micro-organism or its toxin that causes or may cause human disease. These include bacterial, fungal, viral, rickettsial, and chlamydial agents (see 42 CFR 72.3 for complete list of etiologic agents).

Heating-Ventilation-Air-Conditioning (HVAC). Air handler or air handling unit.

High Efficiency Particulate Air (HEPA) Filter Unit. Air-filtering unit that is 95% to 99.97% efficient in removing particles with a diameter of 0.3 microns or more.

Infection-Control Risk Assessment (ICRA). The facility-specific assessment of bioterrorism response, readiness and containment.

Isolation. The separation of an infected person or group of infected people from other uninfected people to prevent the spread of infection.

Negative Airflow Rooms. A “containment space” or “negative isolation room” used for activities that produce vapors, odors or microorganisms that must not be allowed to escape into adjacent areas. To accomplish this, the space is maintained under negative pressure, causing air to flow continuously *into* the space from adjacent areas.

Personal Protective Equipment (PPE). Equipment designed to protect employees from serious workplace illness or injury resulting from contact with chemical, biological, radiological, physical, or other workplace hazards. PPE includes a variety of devices and garments, such as goggles, coveralls, gloves, vests, and respirators.

Positive Airflow Rooms. A “clean-room” or “positive isolation room” used for activities requiring absence of dust particles and other airborne contaminants. To prevent particulate matter or infectious organisms from entering the space, the room must be

positively pressurized, forcing air to flow continuously *out* of spaces around doors and windows and other small openings in the walls and ceiling of the room.

Quarantine. The restriction of activities or limitation of freedom of movement of those presumed or potentially exposed to a communicable disease, to prevent contact with people not exposed. Although quarantine measures may be instituted and enforced for either individuals or populations, the term is used more frequently to discuss measures taken at the population level.

Regulated Medical Waste (RMW). Any of the following waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in production and testing of biologicals, provided however, that RMW shall not include hazardous waste identified or listed pursuant to Section 27-0903 of the Environmental Conservation Law, or any household waste promulgated under this section. Six subcategories exist within the general definitions of regulated medical waste. The last subcategory provides for the Commissioner of Health to designate specific items that previously have not been considered as regulated medical waste. As no items have yet to be added to this subcategory, the remaining five are considered to be part of the current working definitions of regulated medical waste. They are:

- Cultures and Stocks. "This waste shall include cultures and stocks of agents infectious to humans, and associated biologicals, cultures from medical or pathological laboratories, cultures and stocks of infectious agents from research and industrial laboratories, wastes from the production of biologicals, discarded live or attenuated vaccines, or culture dishes and devices used to transfer, inoculate or mix cultures."

- Human Pathological Wastes. "This waste shall include tissue, organs, and body parts (except teeth and the contiguous structures of bone and gum), body fluids that are removed during surgery, autopsy, or other medical procedures, or specimens of body fluids and their containers, and discarded material saturated with such body fluids other than urine, provided that the Commissioner, by duly promulgated regulation, may exclude such discarded material saturated with body fluids from this definitions if the Commissioner finds that it does not pose a significant risk to public health. This waste shall not include urine or fecal materials submitted for other than diagnosis of infectious diseases."

- Human Blood and Blood Products. "This waste shall include: (I) discarded waste human blood, discarded blood components (e.g. serum and plasma), containers with free flowing blood or blood components or discarded saturated material containing free flowing blood or blood components; and (II) materials saturated with blood or blood products provided that the commissioner, by duly promulgated regulation, may exclude such material saturated with blood or blood products from this definitions if the commissioner finds that it does not pose a significant risk to public health."

- Sharps. "This waste shall include but not be limited to discarded unused sharps and sharps used in animal or human patient care, medical research, or clinical or pharmaceutical laboratories, hypodermic, intravenous, or other medical needles, hypodermic or intravenous syringes to which a needle or other sharp is still attached, Pasteur pipettes, scalpel blades, or blood vials. This waste shall include, but not be limited to, other types of broken or unbroken glass (including slides and cover slips) in contact with infectious agents. This waste shall not include those parts of syringes from which sharps are specifically designed to be easily removed and from which sharps have actually been removed, and which are intended for recycling or other disposal, so long as such syringes have not come in contact with infectious agents."

- Animal Waste. "This waste shall mean discarded materials including carcasses, body parts, body fluids, blood, or bedding originating from animals known to be contaminated with infectious agents (i.e. zoonotic organisms) or from animals inoculated during research, production of biologicals, or pharmaceutical testing with infectious agents."

Respiratory Protection Program. Program that includes medical clearance of personnel likely to be called on to wear a NIOSH-approved fit-tested N95 particulate respirator and appropriate occupational record-keeping. These programs will comply with OSHA standard 1910.134.

Synchronous Rash. Lesions all at same state of development on face, forearms, hands (including palms) that may have spread to legs (including soles of feet) and/or trunk.

Type C (Contagious) Facility. A structure with non-shared ventilation system, controlled access, adequate utilities, two-way communication system, and the ability to provide medical care.

Type X (Uncertain) Facility. The same isolation and general supply requirements as Type C facilities, but only basic medical services provided.

Type R (Residential) Facility. A person’s own home. If contacts without symptoms cannot be housed in their own residence due to logistical or other reasons, establish alternate Type R facilities in designated barracks, recreation centers, guest houses, or similar facilities with sleeping accommodations and utilities.